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FarmFacts

Produced by Saskatchewan Agriculture and Food and Saskatchewan Rural Development

Evening primrose (Oenothera spp.) — also called tree primrose, scurvish, scabbish, King's Cureall, and nightwillow herb — is a well known wild flower and is found on roadsides, field edges and in waste places, particularly in south central Saskatchewan. **However, hybrid Oenothera, of commercial interest to the health food market, has not proven itself to be winter hardy in Western Canada.**

Hybrid Oenothera is a biennial or winter annual, forming a rosette of leaves flat to the ground in the first year and overwintering in this form. In the second year the plant bolts, producing a branched flowering stalk one to two metres in height. The flowers, slightly phosphorescent yellow in colour, open in the evening and last but a single day. Two to five flowers on each stalk will open each day, while the total flowering period will have a duration of four to six weeks in July and August. Seeds are found in a dry capsule.

Historically, evening primrose is native to North America. From here it was introduced into Europe in the early 1600's. Over the years the Europeans used the plant as a vegetable, eating the fleshy root, the leaves and the buds. Until recently, evening primrose was not noted for its medicinal uses. Towards the end of the 1960's the pharmaceutical properties of the plant began to receive attention in Yugoslavia. During the 1970's and '80's commercial production developed in the Netherlands, the United Kingdom, Hungary and Yugoslavia as well as in the United States, New Zealand, Australia and to a very limited extent in Canada. Pharmaceutical companies would contract production, extract the oil, and prepare and distribute primrose products to consumers. Various parts of the plant have been reputed in folk medicine to be beneficial in treating colds, mental depression, and complaints of the liver, spleen, and digestive tract.

It is the oil from the seed that is currently of research, clinical, and commercial interest. Possibly because of its connection to herbal medicine, use of evening primrose oil in more conventional settings is controversial. The value of the oil lies in its high concentration of gamma-linolenic acid (GLA), traditionally at nine to eleven percent of the oil. Other plant sources of GLA are from borage seed and black currant seed while major conventional sources are oat and barley bran (maybe), fish oils and human milk.

Production

The annual Canadian and US production of commercial hybrid evening primrose seed has been estimated to be 160 - 200 tonnes. US production is centered in North Carolina, Texas, South Carolina, and Oregon. Canadian production is centered in Nova Scotia and Ontario with production testing attempted in Manitoba without success.

In Nova Scotia, commercial production developed under contract to Efamol Limited in the early 1980's reportedly reached 500 acres in 1985 and again in 1986. However, contracts were not let for 1987 or 1988, presumably because of high world inventories resulting from successes in other countries. Yields in Nova Scotia have been highly variable, from a few hundred pounds to more than a tonne per acre. In 1986 a significant portion of the crop was lost to flooding of the Annapolis River. Yields in excess of 600 pounds per acre are believed to be sufficient for a commercial crop. Production in Canada is presently under study in Ontario but it is too early to know if success will result.

In Ontario, the crop is started in greenhouses in mid-winter and transplanted into the fields in early spring. Production in this fashion will permit harvesting the seed in the same year that the crop is put into the field, thereby eliminating the need of devoting a field to the crop for two seasons to get a single harvest.

In 1985-86, Agriculture Canada, in cooperation with Elders Grain, fall planted five plots in southern Manitoba. Winter survival of evening primrose was poor; the best plot achieved 30 - 50% stand.

The Agriculture Canada Research Station at Morden, Manitoba had a small test plot which suffered from winterkill two years out of three. Morden has discarded evening primrose from its Western Canadian evaluation trails.

Agronomy

Agronomic information is available from Agriculture Canada, Box 186, Delhi, Ontario, N4B 2W9, (519) 582-1950.

Marketing

Reliable data on supply and demand, on imports and exports, on world trade, and on domestic and world prices are not available. This is as one might expect for a relatively new crop which is produced under contract. The lack of reliable data was witnessed in Nova Scotia in 1986 when expectations for a doubling of the acreage to 1,000 in 1987 turned into no contracts at all by planting time. There is no centre of

trade, no clearing house, and no open public market. However, the price paid to farmers in Nova Scotia has been reported to be about $4.20 per kilogram in 1986. Ontario's experience in 1987 and 1988 indicates significant profits of several thousand dollars per acre. This is the result of a combination of high yields (over 1,400 pounds per acre), high GLA content (15%) and oil extraction done by the grower's Co-op. The Cooperative then sells the oil to pharmaceutical firms for use in preparing consumer products. The oil is reported to sell in the $50 to $75 per litre range (and higher). The international marketing channels are vertically integrated, tightly controlled operations.

Processing/Handling

Processing of evening primrose seed and oil is not well established in Canada. The seed from the crop grown in Nova Scotia was exported to Europe for processing. However, the technology for such processing is known and Canadian firms have shown some interest in establishing the value-added sector domestically. The evening primrose Grower's Cooperative in Ontario extracts the oil and sells it to pharmaceutical companies on behalf of growers.

Summary

Current evening primrose hybrids will not reliably overwinter in Western Canada. Growers interested in the gamma linolenic acid market should consider production of borage seed. Borage seed has many of the same risks/constraints as evening primrose seed with one very critical difference: borage has been successfully grown in Saskatchewan and Manitoba.

Sources of Information

Farmers interested in further information on evening primrose markets and contracts should write to Efamol c/o Annapolis Valley Industrial Park, Box 818, Kentville, Nova Scotia, B4N 4H9, (902) 678-5534 or Quest Vitamin Supplies, Vancouver, BC, V6P 6P2, (604) 261-0611.

Portions of this article were excerpted from "Evening Primrose" by Agriculture Canada Staff, Ottawa.

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